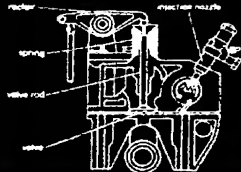
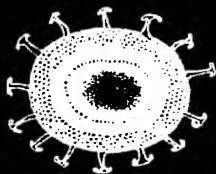


**McGraw-Hill**

# **Dictionary of Scientific and Technical Terms**



**DANIEL N. LAPEDES** Editor in Chief

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#### Library of Congress Cataloging in Publication Data

McGraw-Hill dictionary of scientific and technical terms.

1. Science—Dictionaries. 2. Technology—Dictionaries. I. Lapedes, Daniel N., ed. II. Title: Dictionary of scientific and technical terms. Q123.M15 503 74-16193  
ISBN 0-07-045257-4

## homogeneous radiation homotopy groups

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**homogeneous radiation** [PHYS] Radiation having an extremely narrow band of frequencies, or a beam of monoenergetic particles of a single type, so that all components of the radiation are alike.

**homogeneous reactor** [NUCLEO] A nuclear reactor in which fissionable material and moderator (if used) are intimately mixed to form an effectively homogeneous medium for neutrons.

**homogeneous space** [MATH] A topological space having a group of transformations acting upon it, that is, a transformation group, where for any two points  $x$  and  $y$  some transformation from the group will send  $x$  to  $y$ .

**homogenize** [MET] To hold metal at a high temperature long enough to eliminate by diffusion any chemical segregation of the components.

**homogenizer** [MECH ENG] A machine that blends or emulsifies a substance by forcing it through fine openings against a hard surface.

**homogentisase** [BIOCHEM] The enzyme that catalyzes the conversion of homogentisic acid to fumaryl acetoacetic acid.

**homogentisic acid** [BIOCHEM]  $C_8H_8O_4$  An intermediate product in the metabolism of phenylalanine and tyrosine; found in excess in persons with phenylketonuria and alkaptonuria.

**homogony** [BOT] Condition of having one type of flower, with stamens and pistil of uniform length.

**homograft** [BIOL] Graft from a donor transplanted to a genetically dissimilar recipient of the same species.

**homograft rejection** [IMMUNOL] An immunologic process by which an individual destroys and casts off a tissue transplanted from a donor of the same species.

**homolochlamydeous** [BOT] Having perianth leaves alike, not differentiated into sepals and petals.

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**Holostela** [PALEON] A class of extinct echinoderms in the subphylum Homalozoa.

**homolethal** [CYTOL] Referring to eggs having small amounts of evenly distributed yolk. Also known as isolethal.

**homological algebra** [MATH] The study of the structure of modules, particularly by means of exact sequences; it has application to the study of a topological space via its homology groups.

**homologous** [BIOL] Pertaining to a structural relation between parts of different organisms due to evolutionary development from the same or a corresponding part, such as the wing of a bird and the pectoral fin of a fish.

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**homology group** [MATH] Associated to a topological space  $X$ , one of a sequence of Abelian groups  $H_n(X)$  that reflect how  $n$ -dimensional simplicial complexes can be used to fill up  $X$  and also help determine the presence of  $n$ -dimensional holes appearing in  $X$ . Also known as Betti group.

**homology theory** [MATH] Theory attempting to compare topological spaces and investigate their structures by determining the algebraic nature and interrelationships appearing in the various homology groups.

**homolysis** [CHEM] Symmetrical breaking of a covalent electron bond; for example,  $A:B \rightarrow A\cdot + B\cdot$ .

**homometric pair** [CRYSTAL] A pair of crystal structures whose x-ray diffraction patterns are identical.

**homomorphism** [BOT] Having perfect flowers consisting of only one type. [MATH] A function between two algebraic systems of the same type which preserves the algebraic operations.

**homomorphs** [CHEM] Chemical molecules that are similar in size and shape, but not necessarily having any other characteristics in common.

**Homoneura** [INV ZOO] A suborder of the Lepidoptera with mandibulate mouthparts, and fore- and hindwings that are similar in shape and venation.

**homonomous hemianopsia** [MED] Partial blindness affecting the inner half of one field of vision or the outer half of the other; caused by optic nerve lesions posterior to the chiasma.

**homopause** [GEOPHYS] The level of transition between the homosphere and the heterosphere; it lies about 80 to 90 kilometers above the earth.

**homopetalous** [BOT] Having all petals identical.

**homoplasy** [BIOL] Correspondence between organs or structures in different organisms acquired as a result of evolutionary convergence or of parallel evolution.

**homopolar** [ELEC] 1. Electrically symmetrical. 2. Having equal distribution of charge.

**homopolar bond** [PHYS CHEM] A covalent bond whose total dipole moment is zero.

**homopolar generator** [ELECTR] A direct-current generator in which the poles presented to the armature are all of the same polarity, so that the voltage generated in active conductors has the same polarity at all times; a pure direct current is thus produced, without commutation. Also known as acyclic machine; homopolar machine; unipolar machine.

**homopolar machine** See homopolar generator.

**homopolymer** [ORG CHEM] A polymer formed from a single monomer; an example is polyethylene, formed by polymerization of ethylene.

**Homoptera** [INV ZOO] An order of the class Insecta including a large number of sucking insects of diverse forms.

**Homo sapiens** [VERT ZOO] Modern human species; a large, erect, omnivorous terrestrial biped of the primate family Hominidae.

**homoscedastic** [STAT] 1. Pertaining to two or more distributions whose variances are equal. 2. Pertaining to a variate in a bivariate distribution whose variance is the same for all values of the other variate.

**Homosclerophorida** [INV ZOO] An order of primitive sponges of the class Demospongiae with a skeleton consisting of equeirayed, tetraxonid, siliceous spicules.

**homoserine** [BIOCHEM]  $C_4H_9O_3N$  An amino acid formed as an intermediate product in animals in the metabolic breakdown of cystathionine to cysteine.

**homosexual** [BIOL] Of, pertaining to, or being the same sex. [PSYCH] 1. Of, pertaining to, or exhibiting homosexuality. 2. One who practices homosexuality.

**homosexuality** [PSYCH] 1. State of being sexually attracted to members of the same sex. 2. A form of homoeroticism involving sexual interest without genital expression.

**homosexual panic** [PSYCH] An acute syndrome that comes as a climax of prolonged tension from unconscious homosexual conflicts or sometimes bisexual tendencies.

**homosphere** [METEOROL] The lower portion of a two-part division of the atmosphere (the upper portion is the heterosphere) according to the general homogeneity of atmospheric composition; the region in which there is no gross change in atmospheric composition, that is, all of the atmosphere from the earth's surface to about 80-100 kilometers.

**homospory** [BOT] Production of only one kind of asexual spore.

**homothallic** [MYCOL] Having genetically compatible hyphae and therefore forming zygospores from two branches of the same mycelium.

**homotopy** [MATH] Between two mappings of the same topological spaces, a continuous function representing how, in a step-by-step fashion, the image of one mapping can be continuously deformed onto the image of the other.

**homotopy groups** [MATH] Associated to a topological space  $X$ , the groups appearing for each positive integer  $n$ , which

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